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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/623,940

07/18/2003

Atsushi Nakajima

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EXAMINER

TRAN, NHAN T

ART UNIT

PAPER NUMBER

2622

MAIL DATE

DELIVERY MODE

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PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

# Office Action Summary

Application No.

10/623,940

Applicant(s)

NAKAJIMA ET AL.

Examiner

Nhan T. Tran

Art Unit

2622

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 18 July 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-12 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-12 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 18 July 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

## **DETAILED ACTION**

### ***Information Disclosure Statement***

1. The information disclosure statement (IDS) submitted on 7/18/2003 is in compliance with the provisions of 37 CFR 1.97. Accordingly, the information disclosure statement is being considered by the examiner.

### ***Priority***

2. No foreign priority benefit is claimed.

### ***Specification***

3. The title of the invention "Image Processing Device and Method" is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

### ***Claim Objections***

4. Claim 2 is objected to because of the following informalities: this claim recites "claim I" which should be corrected to read as -- claim 1 --. Appropriate correction is required.

### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

5. Claims 1-4 & 7-10 are rejected under 35 U.S.C. 102(e) as being anticipated by Shyu (US 6,816,191).

Regarding claim 1, Shyu discloses an image processing device (Fig. 6) for emphasizing a contrast of an image (col. 3, lines 38-56), which includes a means (signal converter 80 in combination with processor 20) for converting data of an image from an image sensor (70) into image data with emphasis of a change in brightness in each of plural luminous divisions (illustrated by luminous divisions in X-axis shown in Figs. 4 & 9) by using a conversion table for output data of the image sensor (see Figs. 4 & 9-13 and col. 5, line 1 – col. 8, line 51, wherein a conversion table stored in memory 40/30 is used to emphasize contrast in each of luminous divisions illustrated in X axis of Figs. 4 & 9 in which the contrast is emphasized by converting the input luminous values in each division shown in X-axis to the output luminous values in Y-axis).

Regarding claim 2, Shyu also discloses a whole luminous area of an image is divided into a plurality of continuous divisions (see Figs. 4 & 9 for a plurality of

continuous divisions starting at 0 and ending at X2 or X2') and a continuous change in brightness in each of the divisions is emphasized (see col. 5, line 40 – col. 6, line 59).

Regarding claim 3, it is also seen in Fig. 4 and col. 6, lines 26-29 that a whole brightness area of an image is divided into a plurality of continuous divisions, wider for a dark portion (i.e., portion corresponding to X1-X3 in Fig. 4) and narrower for a light portion (i.e., portion corresponding to X3-X3' or X3'-X2 in Fig. 4) desirable to be emphasized in contrast, and a continuous change in brightness in each of the divisions is emphasized (see col. 6, lines 26-59 and note that each division can be set wider or narrower depending on the user's input to emphasize the contrast to his/her reference; thus, the claim limitations are encompassed by such disclosure of Shyu).

Regarding claim 4, as seen in Fig. 9 of Shyu, a whole luminous area of an image is divided into a plurality of discrete divisions (i.e., divisions 0-X'1, X'1-X1, X1-Xe, Xe-X2, X2-X'2) and a change in brightness in each of the divisions separately emphasized (see col. 5, line 40 – col. 6, line 59).

Regarding claims 7-10, these method claims are also met by the analyses of the apparatus claims 1-4, respectively.

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claim 6 & 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shyu (US 6,816,191) in view of Takada et al. (US 4,973,833).

Regarding claim 6, although Shyu teaches an image sensor (70) for outputting image data to image processing circuit (80, 20), Shyu is silent about that the image sensor has a logarithm output characteristic.

Takada clearly teaches an image sensor having a plurality of pixels, wherein each pixel includes a logarithm converter for outputting image signal having logarithmic characteristic so as to provide a very wide dynamic range image output (see Takada, abstract).

Therefore, it would have been obvious to one of ordinary skill in the art to combine the teachings of Shyu and Takada to provide the imaging apparatus with a logarithmic image sensor so as to provide a very wide dynamic range image output for processing as taught by Takada above.

Regarding claim 12, see the analysis of claim 6.

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7. Claims 5 & 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shyu (US 6,816,191) in view of Mehigan (US 6,778,186).

Regarding claim 5, Shyu discloses the image processing device as discussed in claims 1 & 4 but fails to disclose that each of luminous areas between discrete divisions are converted into halftone image data. However, it is well recognized by Mehigan that it is necessary to convert a color image data into halftone image data to improve image quality for printing (see Mehigan, col. 1, lines 25-28, 55-62).

Therefore, it would have been obvious to one of ordinary skill in the art to modify the image processing apparatus in Shyu to include halftone converter for converting each of luminous areas between discrete divisions into halftone image data so that the image would be improved for printing as suggested by Mehigan above.

Regarding claim 11, see the analysis of claim 5.

### ***Conclusion***

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Nhan T. Tran whose telephone number is (571) 272-7371. The examiner can normally be reached on Monday - Friday, 8:00am - 4:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Ometz can be reached on (571) 272-7593. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

A handwritten signature in black ink, appearing to read 'Nhan Tran', with a stylized, flowing script.

NHAN T. TRAN  
Patent Examiner